CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2017-09-05-01** **Date: 07-09-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to Roads, Drains and Asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer's Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	05-09-17
Sample ID No	:	2017-09-05-01/01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 (Part 1,2 3,4,5, 6,11):1988 IS 4031 Part 1 DETERMINATION OF FINENESS BY DRY SIEVING, Clause 4.4 IS 4031 Part 2, Determination of Fineness by Blaine Air Permeability Method, Clause 5 IS 4031 Part 3, Determination of Soundness, Clause 5,Clause 6 IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 5, Determination of Initial & Final Setting Time, Clause 5 IS 4031 Part 11,DETERMINATION OF DENSITY , Clause 6
Date of test	:	06-09-17

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	Fineness by dry sieving (%)	2.35	–
2	Finess by Air permeablity method (m^2/kg, Min)	276.9	225m^2/kg, Min
3	Density (gm/cc)	3.24	–
4	Standard Consistency (%)	27.5%	Not specified
5	Initial Setting time	165 minutes	Not less than 30 minutes
6	Final Setting time	275 minutes	Not more than 600 minutes
7	Soundness (Le Chatelier's Method)	2mm	Not more than 10 mm

Note:

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CP/TF/01

TEST REPORT OF PHYSICAL PROPERTIES OF CEMENT - 53 Grade

Lab ID	:	**CP-2017-09-05-01** **Date: 04-10-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to Roads, Drains and Asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara,
Customer's Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	05-09-17
Sample ID No	:	2017-09-05-01/01
Sample Type	:	Birla Super 53grade
Reference to BIS codes	:	IS 12269 : 2013, 53 Grade Ordinary Portland cement Specification , IS 4031 Part 4, Determination of Consistency of Standard Cement Paste, Clause 5 IS 4031 Part 6, Determination of Compressive Strength, Clause 6
Date of test	:	06-09-17

Compressive Strength

Sl.No.	Physical properties	Results	Requirement as per IS 12269: 2013
1	3 Days	28.5N/mm^2	Not less than 27 N/mm^2
2	7 Days	39.0N/mm^2	Not less than 37 N/mm^2
3	28 Days	56.5N/mm^2	Not less than 53 N/mm^2

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CP/TF/01

TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2017-09-05-01** **Date: 08-09-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to Roads, Drains and Asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	05-09-17
Sample ID No	:	2017-09-05-01-02(b)
Sample Type/ Size	:	20mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	05-09-17

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 20MM DOWN COARSE AGGREGATE:

Total weight taken : 5000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	40 mm	0	0	0	100	100
2	20 mm	228	228	4.6	95.4	90-100
3	10 mm	2765	2993	59.9	40.1	25-55
4	4.75 mm	1786	4779	95.6	4.4	0-10
5	Pan	221	5000	100	0	–

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2017-09-05-01** **Date: 08-09-17**

Sample ID No : 2017-09-05-01-02(b)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	**11.9**	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	**11.4**	
3	Specific Gravity	**2.67**	–
4	Bulk Density(Loose) (Kg/l)	**1.55**	–
5	Bulk Density(Compacted) (Kg/l)	**1.58**	–
6	Water Absorption(%)	**0.23**	–
7	Aggregate crushing Value(%)	**22.4**	Max 30% for Aggregates to be used in concrete for wearing Surface, In case Aggregate Crushing Value Exceeds 30% then the test for ten percent fines should be conducted for Aggregates to be used in concrete other than for wearing Surface.
8	Aggregate Impact Value(%)	**21.9**	30% for Aggregates to be used in concrete for wearing Surface, 45% for Aggregates to be used in concrete other than for wearing Surface.

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TEST REPORT ON COARSE AGGREGATES

Lab ID	:	**CP-2017-09-05-01** **Date: 08-09-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to Roads, Drains and Asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer's Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample condition	:	Satisfactory
Date of Receipt	:	05-09-17
Sample ID No	:	2017-09-05-01-02(a)
Sample Type	:	40mm down size coarse aggregate
Reference to BIS codes	:	IS: 383:2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1,3,4) RA2011 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption IS 2386 Part 4: Mechanical Properties
Date of test	:	05-09-17

SIEVE ANALYSIS (PARTICLE SIZE DISTRIBUTION) OF 40MM DOWN COARSE AGGREGATE:

Total weight taken : 15000 grams

Sample No.	Sieve No.	Weight Retained in gms	Cumulative Weight Retained in gms	% Cumulative Weight Retained	% Passing	Required as per IS 383:2016
1	80 mm	0	0	0.0	100	100
2	40 mm	256	256	1.7	98.3	90-100
3	20 mm	5437	5693	38.0	62.0	30-70
4	10 mm	4633	10326	68.8	31.2	10-35
5	4.75 mm	4220	14546	97.0	3.0	0-5
6	Pan	454	15000	100.0	0	---

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TEST REPORT ON COARSE AGGREGATES

Lab ID : **CP-2017-09-05-01** **Date: 08-09-17**

Sample ID No : 2017-09-05-01-02(a)

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS:383-2016
1	Flakiness Index(%)	12.5	Combined Flakiness & Elongation Index Shall not Exceed 40% for Uncrushed & Crushed Aggregate
2	Elongation Index(%)	12.1	
3	Specific Gravity	2.69	_
4	Bulk Density(Loose) (Kg/l)	1.51	_
5	Bulk Density(Compacted) (Kg/l)	1.56	_
6	Water Absorption(%)	0.22	_

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TEST REPORT OF FINE AGGREGATE

Lab ID	:	**CP-2017-09-05-01** **Date: 08-09-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to Roads, Drains and Asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer's Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	05-09-17
Sample ID No	:	2017-09-05-01-03
Sample Type	:	Fine Aggregate
Reference to BIS codes	:	IS 383 : 2016 (Specification for Coarse and fine Aggregates) IS: 2386 :1963(Part - 1, 3) RA2012 IS 2386 Part 1: Particle Size and Shape IS 2386 Part 3: Specific gravity, Density, Voids,Water Absorption
Date of test	:	05-09-17
Total weight taken	:	1000 grams

Sl.no	Sieve Size	Weight Retained (gms)	Cumulative Weight Retained (gms)	% Cumulative Weight Retained	% Passing	Requirement as per IS 383:2016			
						Grading Zone I	Grading Zone II	Grading Zone III	Grading Zone IV
1	10 mm	0	0	0.0	100.0	100	100	100	100
2	4.75 mm	82	82	8.2	91.8	90-100	90-100	90-100	95-100
3	2.36 mm	167	249	24.9	75.1	60-95	75-100	85-100	95-100
4	1.18 mm	177	426	42.6	57.4	30-70	55-90	75-100	90-100
5	600 micron	188	614	61.4	38.6	15-34	35-59	60-79	80-100
6	300 micron	156	770	77.0	23.0	5-20	8-30	12-40	15-50
7	150 micron	143	913	91.3	8.7	0-10	0-10	0-10	0-15
8	Pan	87	1000	100.0	0.0	---	---	---	---

Result :The tested Sample Conforms to Grading Zone II

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TEST REPORT OF FINE AGGREGATE

Lab ID : **CP-2017-09-05-01** **Date: 08-09-17**

Sample ID No : 2017-09-05-01-03

PHYSICAL PROPERTIES

Sl.no	Tests	Result	Requirements as per IS 383:2016
1	Water Absorption(%)	1.8	–
2	Specific Gravity	2.59	–
3	Material finer than 75 micron(%)	4.9	Uncrushed fine Aggregate Max 3%, Crushed Fine aggregate Max 15%, Mixed Fine aggregate Max 12%, Manufactured Fine aggregate Max 10%

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CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2017-09-18-08** **Date: 19/09/2017**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.

Address : Vidyaranyapura Sub division, BBMP, Bangalore.

Project Name : Improvements to Roads, Drains and Asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.

Agency : Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.

Customer's Reference : BBMP/EE/BTP/WO/89/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 18-09-17

Sample ID No : 2017-09-18-08-01

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M15 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 19/09/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M15	12/09/2017	19/09/2017	150.26 X 150.28 X 150.30	22581	8.321	273.2	12.1	12.4
2	PCC	M15	12/09/2017	19/09/2017	150.20 X 150.34 X 150.35	22581	8.326	277.7	12.3	
3	PCC	M15	12/09/2017	19/09/2017	150.28 X 150.33 X 150.39	22592	8.315	289.2	12.8	

Note:

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2017-09-18-08** **Date: 10/10/2017**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.

Address : Vidyaranyapura Sub division, BBMP, Bangalore.

Project Name : Improvements to Roads, Drains and Asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.

Agency : Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.

Customer's Reference : BBMP/EE/BTP/WO/89/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 18-09-17

Sample ID No : 2017-09-18-08-02

Customer ID : PCC

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M15 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 10/10/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	PCC	M15	12/09/2017	10/10/2017	150.36 X 150.38 X 150.30	22611	8.351	368.6	16.3	16.1
2	PCC	M15	12/09/2017	10/10/2017	150.32 X 150.34 X 150.35	22599	8.346	363.8	16.1	
3	PCC	M15	12/09/2017	10/10/2017	150.38 X 150.33 X 150.33	22607	8.355	357.2	15.8	

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CP/TF/01

TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2017-09-20-05** **Date: 22/09/2017**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.

Address : Vidyaranyapura Sub division, BBMP, Bangalore.

Project Name : Improvements to Roads, Drains and Asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.

Agency : Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.

Customer's Reference : BBMP/EE/BTP/WO/89/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 20-09-17

Sample ID No : 2017-09-20-05-01

Customer ID : Drain Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 7 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 22/09/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Concrete	M20	15/09/2017	22/09/2017	150.33 X 150.28 X 150.35	22592	8.301	388.6	17.2	17.5
2	Drain Concrete	M20	15/09/2017	22/09/2017	150.25 X 150.31 X 150.32	22584	8.298	402.0	17.8	
3	Drain Concrete	M20	15/09/2017	22/09/2017	150.29 X 150.33 X 150.33	22593	8.308	397.6	17.6	

Note:

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TEST REPORT OF CEMENT CONCRETE CUBES

Lab ID : **CP-2017-09-20-05** **Date: 13/10/2017**

Customer : Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.

Address : Vidyaranyapura Sub division, BBMP, Bangalore.

Project Name : Improvements to Roads, Drains and Asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.

Agency : Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.

Customer's Reference : BBMP/EE/BTP/WO/89/2017-18

Source of Sample : Sample supplied by Agency

Sample Condition : Satisfactory

Date of Receipt : 20-09-17

Sample ID No : 2017-09-20-05-02

Customer ID : Drain Concrete

Sample Type /Size : 150X150X150 mm

Sample grade/Age : M20 / 28 Days Compressive Strength

Reference to BIS codes : IS: 516 - 1959 Methods of Tests for Strength of Concrete Cl.5

Date of test : 13/10/2017

Sl. No.	Identification Mark	Grade of concrete	Date of Casting	Date of Testing	Dimension of the Specimen (mm)	Cross sectional area (Sq.mm)	Weight of the sample (kg)	Failure Load (KN)	Compressive strength (N/mm^2)	Average Compressive Strength (N/mm^2)
1	Drain Concrete	M20	15/09/2017	13/10/2017	150.34 X 150.29 X 150.32	22595	8.325	460.9	20.4	21.0
2	Drain Concrete	M20	15/09/2017	13/10/2017	150.28 X 150.31 X 150.30	22589	8.299	472.1	20.9	
3	Drain Concrete	M20	15/09/2017	13/10/2017	150.37 X 150.33 X 150.38	22605	8.343	490.5	21.7	

Note:

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CP/TF/01

TEST REPORT ON BITUMEN

Lab ID	:	**CP-2017-09-27-01** **Date: 28-09-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP,
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads drains and asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer's Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	27-09-17
Sample ID No	:	2017-09-27-01/01
Sample Type	:	Bitumen
Reference to BIS codes	:	IS: 1201-1220(1978) (Reaffirmed-2004)
Date of test	:	27-09-17

Test Results

Sl.no	Name of Test	Result	Requirements as per IS:73-2013
1	Penetration at 25°C , in 1/10th mm	**64**	60 to 70
2	Softening Point, °C	**51.2**	Min. 40°C
3	Ductility, cm	**98**	Min. 75cm
4	Flash point, °C	**245**	Min. 220°C
	Fire point, °C	**272**	

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TEST RESULTS OF STEEL

Lab ID	:	**CP-2017-09-07-01** **Date: 08-09-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to Roads, Drains and Asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer's Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-09-17
Sample ID No	:	2017-09-07-01-01
Sample Type	:	JSW
Reference to BIS codes	:	IS 1786-2008, IS:1608-2005(RA 2011), IS 1599-2012.
Date of test:	:	07-09-17

Sl.No	Identification of sample	Grade of the sample	Diameter of the steel bar	Weight of the sample	Yield stress	Tensile strength	Elongation	Bend test	Rebend test
			(mm)	(kg/m)	(N/mm2)	(N/mm2)	(%)		
1	JSW	Fe500	8	0.392	542	680	20.0%	Satisfactory	Satisfactory
2	JSW	Fe500	10	0.615	570	690	20.0%	Satisfactory	Satisfactory

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TEST REPORT OF PRECAST COVER SLAB

Lab ID	:	**CP-2017-09-07-01** **Date: 11-09-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to Roads, Drains and Asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer's Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	07-09-17
Sample ID No	:	2017-09-07-01-02
Sample Type /Size	:	Precast Cover Slab
Reference to BIS codes	:	IS: 516 - 1959 Methods of Tests for Strength of Concrete
Date of test	:	07/09/2017

Sl. No.	Identification Mark	Diameter of the core	Height of the core	Weight of the core	Area	Failure Load	Core Compressive strength	Corrected Cylinder Compressive strength	Equivalent Cube Compressive strength
		(mm)	(mm)	(mm)	(Sq.mm)	(KN)	(N/mm^2)	(N/mm^2)	(N/mm^2)
1	Cover Slab-1	75.52	100.46	1.316	4478	80.5	18.0	16.7	20.9
2	Cover Slab-2	75.47	100.52	1.322	4473	81.3	18.2	16.9	21.1
3	Cover Slab-3	75.50	100.50	1.328	4476	82.5	18.4	17.1	21.4

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TEST RESULTS OF GRADATION FOR WMM

Lab ID	:	**CP-2017-09-26-01** **Date: 27-09-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads drains and asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	26-09-17
Sample ID No	:	2017-09-26-01-01
Type of Mix	:	WMM (Wet Mix Macadam)
Date of test	:	26-09-17
Oven Dry Weight	:	11000 Grams

IS Sieve Size(mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Spec.I.Vide Table 400.13 MORTH Specification
53	0	0	0.0	100.0	100
45	315	315	2.9	97.1	95-100
22.4	2259	2574	23.4	76.6	60-80
11.2	2179	4753	43.2	56.8	40-60
4.75	2251	7004	63.7	36.3	25-40
2.36	1621	8625	78.4	21.6	15-30
0.6	623	9248	84.1	15.9	8-22
0.075	1338	10586	96.2	3.8	0-5

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TEST REPORT OF AGGEGRATE IMPACT VALUE
IS: 2386 Part IV

Lab ID	:	**CP-2017-09-26-01** **Date: 28-09-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP,
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads drains and asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	26-09-17
Sample ID No	:	2017-09-26-01-01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	26-09-17

Sl.No	Particulars of observations	Index	TEST 1	TEST 2
1	Total weight of the surface dry sample sample (passing 12.5 mm and retained on 10mm sieve)	A	300.2	300.2
2	Weight of fraction passing 2.36mm sieve After giving 15 blows	B	73.9	74.0
3	weight of fraction retained 2.36mm sieve After giving 15 blows	C	225.9	225.8
4	Total weight of (B+C) is less than the initial weight (Weight A) by more than one gram the result shall be discarded and a fresh test made.	A-(B+C)	0.4	0.4
5	Aggregate impact value	(B/A)*100	24.6	24.7
6	Aggregate impact value (Mean of two tests)	Pecentage	24.6	

Note:-

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DETERMINATION OF FLAKINESS INDEX AND ELONGATION INDEX OF COARSE AGGREGATE(IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-2017-09-26-01** **Date: 28-09-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads drains and asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	26-09-17
Sample ID No	:	2017-09-26-01-01
Type of Mix	:	Coarse Aggregate for WMM (Wet Mix Macadam)
Date of test	:	26-09-17

Result:

Index	Percentage of Flakiness and Elongation Index	Secified limits as per MORTH specification table 400-12
Flakiness Index	12.8%	Combined Flakiness & Elongation Index for WMM is Maximum 35%
Elongation Index	12.5%	
Combined Flakiness and Elongation Index for WMM	25.3%	

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TEST RESULTS OF GRADATION FOR SDBC
IS 2386 (Part 1) 1963 (RA 2007)

Lab ID	:	**CP-RW-2017-10-03-01** **Date: 05-10-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads drains and asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-10-17
Sample ID No	:	2017-10-03-01-01
Type of Mix	:	SDBC-Plant (Semi Dense Bituminous Concrete)
Date of test	:	03-10-17
Weight of Sample	:	5000 Grams

IS Sieve Size (mm)	Weight Retained (gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-
13.2	0	0	0	100	100
9.5	405	405	8.10	91.90	90-100
4.75	2192	2597	51.94	48.06	35-51
2.36	1040	3637	72.74	27.26	24-39
1.18	523	4160	83.20	16.80	15-30
0.3	505	4665	93.30	6.70	9-19
0.075	167	4832	96.64	3.36	3-8
PAN	168	5000	100.00	0.00	0

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PHYSICAL REQUIREMENTS FOR COARSE AGGREGATE FOR SEMI DENSE BITUMINOUS CONCRETE

Lab ID	:	**CP-RW-2017-10-03-01** **Date: 06-10-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads drains and asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-10-17
Sample ID No	:	2017-10-03-01-01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	03-10-17

Physical Requirements fo Coarse Aggregate for Semi Dense Bituminous Concrete

Property	Test	Result	Specification	Method of Test
Partical Shape	Flakiness Index	11.3	Combined Flakiness & Elongation Index for DBM is Maximum 35%	IS:2386 Part I
	Elongation Index	9.8		
Strength	Aggregate Impact Value	21.2	Maximum 30%	IS:2386 Part IV
Specific gravity	Specific gravity	2.59	Maximum 2.7	IS:2386 Part III
Water Absorption	Water Absorption	0.29	Maximum 2%	IS:2386 Part III

Note:

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TEST REPORT OF AGGEGRATE STRIPPING VALUE OF ROAD AGGRGATE (IS:6241)

Lab ID	:	**CP-RW-2017-10-03-01** **Date: 06-10-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads drains and asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Sample supplied by Agency
Sample Condition	:	Satisfactory
Date of Receipt	:	03-10-17
Sample ID No	:	2017-10-03-01-01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	03-10-17

Type of Binder	:	60/70
% of Binder Used	:	5.0%
Weight of Aggregate	:	200.0 gm
Weight of Binder	:	10.0 gm
Temperature of water bath	:	40°C

No of test	Retained Stripping Percentage	Stripping Percentage	Average Retained Stripping Percentage	Secified limits as per MORTH specification table 500-8
1	99.0	1.0	98.8	Minimum Retained Coating 95%
2	98.5	1.5		
3	99.0	1.0		

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TESTS RESULTS ON STABILITY OF MIX

Lab ID	:	**CP-RW-2017-10-03-01** **Date: 06-10-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.
Project Name	:	Improvements to roads drains and asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.
Customer Reference	:	BBMP/EE/BTP/WO/89/2017-18
Source of Sample	:	Hot Mix Plant, Bangalore
Sample Condition	:	Satisfactory
Date of Receipt	:	03-10-17
Sample ID No	:	2017-10-03-01-01
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)
Date of test	:	03-10-17

The results of the tests conducted on the Semi Dense Bituminous Concrete mix sample are as follow

Sl.No	Particulars of observations	TEST 1	TEST 2	Secified limits as per MORTH specification table 500-16
1	Marshal Stability at 60°C, KN	10.55	10.41	8.2KN(min)
2	Marshal flow at 60°C, mm	3.27	3.26	2-4
3	Percent air Voids	4.59	4.25	3-5
4	Percent Voids in mineral Aggregate(VMA %)	13.89	13.9	13-15
5	Percent Voids filled with Bitumen(VFB %)	70.25	70.20	65-75
6	Density, g/cc	2.25	2.24	–

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TEST RESULTS OF GRADATION FOR DBM
(IS 2386:(Part 1) 1963 (RA2011)

Lab ID	:	**CP-RW-2017-10-06-01**	**Date: 07-10-17**
Customer	:	Assistant Executive Engineer, Vidyaranyapura Sub division, BBMP, Bangalore.	
Address	:	Vidyaranyapura Sub division, BBMP, Bangalore.	
Project Name	:	Improvements to roads drains and asphalting at Vinayakanagar Balance roads in Ward no.11 (kuvempunagara) in Vidyaranyapura Sub division.	
Agency	:	Sri. T. N. Umashankar, No.9/2 , 7th Cross, Papanna Block, Ganganagara, Bangalore-560032.	
Customer Reference	:	BBMP/EE/BTP/WO/89/2017-18	
Source of Sample	:	Sample supplied by Agency	
Sample Condition	:	Satisfactory	
Date of Receipt	:	06-10-17	
Sample ID No	:	2017-10-06-01/01	
Type of Mix	:	SDBC (Semi Dense Bituminous Concrete)	
Date of test	:	06-10-17	

Sl.no	Description	Index	Trail 1	Trail 2
1	Weight of the Sample	A	502	501
2	Weight of the sample After extraction	B	476	477
3	Bitumen percentage	$\frac{A-B}{A} \times 100$	5.18	4.79
4	Average percentage	%	5.0	

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Lab ID : **CP-RW-2017-10-06-01** **Date: 07-10-17**

Sample ID No : **2017-10-06-01/01**

AFTER EXTRACTION(Trail-1)

Weight of Sample(gm) : 476

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-2)
13.2	0	0	0	100.0	100
9.5	31	31	6.51	93.5	90-100
4.75	213	244	51.26	48.7	35-51
2.36	63	307	64.50	35.5	24-39
1.18	39	346	72.69	27.3	15-30
0.3	71	417	87.61	12.4	9-19
0.075	34	451	94.75	5.3	3-8
PAN	25	476	100.00	0.0	0

AFTER EXTRACTION(Trail-2)

Weight of Sample(gm) : 477

IS Sieve Size(mm)	Weight Retained(gm)	Comulative Weight Retained (gm)	Comulative % of Retained	Comulative % of Passing	Secified limits as per MORTH specification table 500-15(grading-2)
13.2	0	0	0	100.0	100
9.5	29	29	6.08	93.9	90-100
4.75	215	244	51.15	48.8	35-51
2.36	62	306	64.15	35.8	24-39
1.18	41	347	72.75	27.3	15-30
0.3	66	413	86.58	13.4	9-19
0.075	32	445	93.29	6.7	3-8
PAN	32	477	100.00	0.0	0

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